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W. L. H.

An
Inaugural Dissertation
On
Indigestion of the Stomach & Duodenum
Submitted to the Examination
Of
The Trustees and Medical Faculty
Of
The University of Pennsylvania
For the Degree
Of
Doctor of Medicine
On

By Joel W. Dupuy
Prince Edwards
Virginia.

April 21st
1881

Dear Mother
I received your letter of the 19th and was
glad to hear from you. I am well and
hope this finds you the same. I have
not much news to write at present.
The weather here is very warm now.
I have been out for a walk today.
I hope to hear from you soon.
Your affectionate son,
John Smith

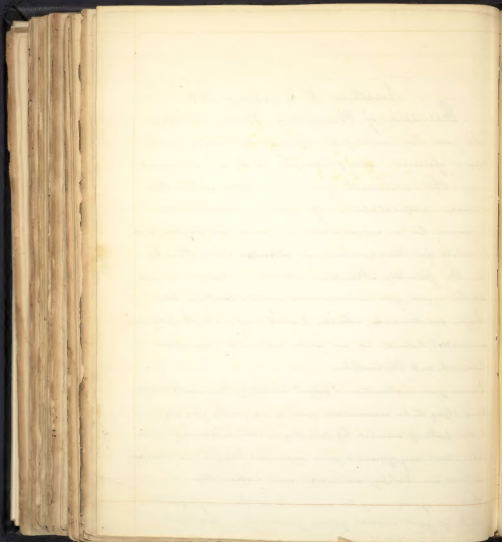
Jonathan P. Cushing To Mr

President of Hampden Sidney College

To you this imperfect essay is dedicated, not
as a formal compliment, but as a mark
of the warmest gratitude. Not with the
vain expectation of giving additional
fame to a reputation already established, but
solely for the purpose of expressing my thanks
for the friendly attention which you bestowed on me
while under your immediate instruction, & for the
high sentiments which I shall ever cherish for your
unrivalled talents as an able instructor, orator, &
Cheminist and Philosopher.

Under your instruction I passed several of the most impor-
tant days to be remembered years of my youth, you urged me
to the path of science by pointing out the inferiority of in-
tellectual enjoyment & your examples taught me that her
votaries are happy, admired and respectable

That your years may be numerous is the unfeigned
wish of your sincere young friend, the Author

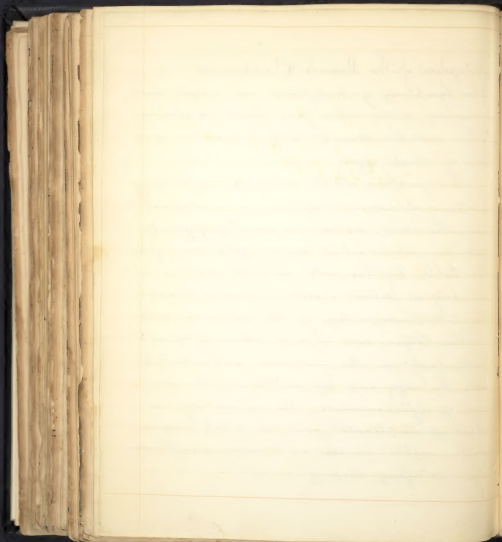


Indigestion of the Stomach & Duodenum.

The symptoms of Indigestion are various and numerous, arising either from crude substances taken into the stomach or the particular condition of that organ.

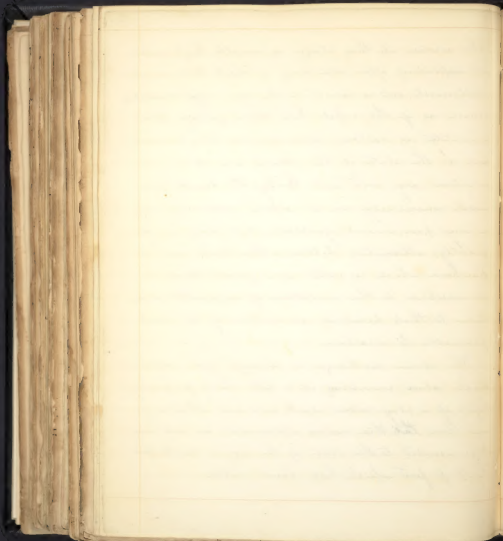
The symptoms which arise more directly from substances of difficult digestion, are a stricture across the chest, dyspnoea, a sense of fullness, distention while eating, or soon after rising from the table, together with eructations of an acid, oily, or putrid nature and also having the taste, more or less, of the substances eaten.

The tongue soon becomes clammy & furred particularly in the middle and about the roots, the edges and tips are ^{red} having the appearance of inflammation, the mind very soon becomes implicated, and the sleep disturbed with night waking, and most disagreeable and distressing dreams.



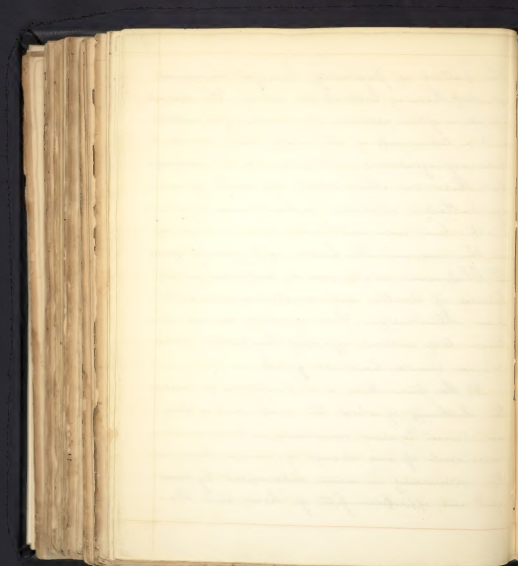
The urine at this stage is usually high coloured, depositing, after standing a short time, a red sediment, and is covered with an oily or milky scum as if the vessel had been greasy. The quantity is various, depending in a great measure on the state of the bowels and skin, which is often dry, cold and Rushy; the bowels are most commonly in a costive state forming a very prominent symptom, but they are frequently alternating between this state and a diarrhoea, which is rather, as a general thing, to be ascribed to the irritation of impacted feces, than to that peculiar condition of the bowels favourable to diarrhoea.

The alvine discharge is changed from its natural colour, sometimes it is like bile, frequently lighter, of a clay colour, dark and even black, green and blue, ~~that~~ these various appearances are not always to be ascribed to the state of the organs, but to the kind of food which has been eaten.



The patient is frequently harassed by nausea, vomiting, burning heat at the pit of the stomach which is often relieved by drinking ice water, and a tenderness of the scalp; these are the ordinary symptoms at this stage of the disease but there are others which are more of a sympathetic character, as head-ach, pain in the head, nose and breast, there is a ringing in the ears, and the hearing is frequently affected. Dr. Chapman relates several instances in his lectures of double and inverted vision and even blindness. These symptoms do not continue long without affecting the pulse which is now small, hard and quick.

At this time there is a paroxysm of fever, the chilliness of which the patient has long complained is now sometimes, and even independent of any change of temperature in the surrounding medium, interrupted by languid and oppressive fits of heat; and the



hands and feet, instead of being uniformly cold as in the earlier stages, often burn, particularly by during the first part of the night while at other times they are more obstinately cold. There is an almost constant thirst, a want of appetite and strength, a want of repose, dyspnoea and haemorrhage expression of constitution.

The skin has a yellow appearance which is almost always accompanied with an enlargement of the liver known by a fullness of the right side but this fullness, we are persuaded, is very often mistaken for an affection of the duodenum. The symptoms of indigestion of the stomach are so numerous that we deem it would be quite unprofitable after enumerating the most prominent to proceed any farther with this part of our subject. We will turn our attention therefore to the symptoms of indigestion of the duodenum aptly termed the second Stomach.



It appears to us that indigestion of this particular viscera would produce as much or more inconvenience than that of the stomach. I am quite satisfied says L. King with whom I spoke concerning and to whom we are under obligations for much of the information we have in this position (our subject) that many morbid affections which have been usually attributed to the stomach ought to be solely referred to the fundamental aberrations of the intestines and when we consider the situation of this intestine with respect to the colon and the peritoneum, which it must supply when we see this latter part is covered with vessels when we reflect upon the elaborate manner in which it is constructed, the connection of its nerves with other organs, its limited capacity and position, its tortuous course, the distension which must arise from its distention and the irritation which from such a cause must, be immediately propagated through its nerves



to be very important nearly when we remember that the paracrotal and lumbar veins may be obstructed by its reflexion and the necessary flow of the femoral, and lastly when we remember that the vena cava inferior may be thus obstructed and the circulation of the lower limbs obstructed, we shall not have much hesitation in recommending that a violent excitation of the liver system must prove a frequent source of local as well as of general distress.

The manner of the symptoms, if haematemesis of the duodenum is common to disease of both stomach and liver we will here introduce a case passing that we may be better enabled to see some evidence to the duodenal and common with it to both the others. In the duodenum the food does not cause immediate oppression, after it has been taken which it does in the stomach. In these and the other organs, viz. liver, in 1843, a number of the subjects are very disordered.



A yellow covering appearance takes place on the Tunica Albuginea of the eye if this appearance disappears soon after the use of this compound remedy, it is a prognostic that is produced by vascular circulation. There is a fullness and puffiness to the right of the foot of the stomach, both under the liver and not extending to the left nor caused by a quantity of extricated gas which can not make its escape through the pylorus by circulation as in the stomach. The uneasiness will be felt by ordinary pressure in the region of the liver but if it be made by the edge of the hand under the ribs, pain will be felt towards the right kidney and lower part of the back in the region of the right kidney. The pain is sharp and fluctuating.



Causes.

The dyspeptic may most generally look to the Liveries of the Lalle, which directly affects the stomach, for the cause of his misery. Perhaps the first cause of indigestion is an over distention of the stomach which is often caused by eating too fast, by which the appetite is not easily satisfied in consequence of the gastric fluid not being neutralized by the peculiar kind of substance eaten which have a tendency to swell, and these circumstances have a direct influence on the nerves and muscular fibres, causing pain, restlessness, and debility. It is evident that such a state can not exist long without affecting the secretions.

Indigestion is occasioned by excessive eating and drinking of any kind, whether digestible or indigestible, but particularly by such articles as strong hot coffee, tea, spirits, acids, meats, ferment

Crusts,



Dr Chapman mentions in his lectures that he never used nitre for any time without deranging the digestive organs. A too free use of Tobacco in any form has produced this disease. The Tobacco is a stimulant, quickly producing a narcotic effect. In chewing a quantity is inevitably conveyed to the stomach with the saliva, and the same thing happens, in smoking. The glands in both instances are unduly excited, hence there is a great loss of saliva which is, of itself of great importance in the first process of digestion and is a serious loss in the digestion of the stomach. Snuffing must not, go unnoticed, for says Dr Cullen "I have found all the symptoms of dyspepsia produced by snuffing and particularly burning of the stomach occurring every day."

There are other causes which act upon the stomach through the general system and through the medium of the nerves, among



which may be enumerated a sedentary and
 indolent life, intense study, late irregular
 hours, cold particularly cold feet, exposure to
 night air; many of the passions have the
 same effects on this viscus; as grief mental
 anxiety; too great abstinence may be enu-
 merated among the causes, the use of warm
 drinks and even ice water have been consi-
 dered the cause of this disease; And it has been
 my fortune to see a very worthy man destroyed
 by dyspepsia, caused by the too free use of ice.
 Mr. Abernethy relates many cases of indigestion
 being brought on by local injuries particu-
 larly of the liver and chest.



Pathology.

From the observations which we have been able to make relative to the Pathology of the digestion we are convinced that its cause is in an irritation of the nerves of the stomach produced by the various causes above enumerated, which can not exist for any time without producing a morbid secretion of the fluids, which are absolutely essential to a perfect digestion. We are aware that this imperfect secretion is often considered the cause of indigestion instead of the effect of irritation, but our opinion is based on the symptoms, cause, and what we conceive to be the best method of cure, and also on some analogous circumstances.

If any of the glands or secreting surfaces be unduly excited or irritated we see fluids become unnatural both in quantity and quality sometimes they are diminished



and at others, increases, but uniformly changes in their properties. Thus in well illustrated in the mucous membrane lining the nose, we see when that is excited it becomes at first dry and inflamed, but after a while we have a copious secretion, which is of an acid nature. Thus we conceive to be precisely the case with the mucous coats of the stomach. When it is excited the secretions are irregular, sometimes deficient, in quantity, and vitiated in quality.

This chronic inflammation for which it should be called, may vary as does the acute form of inflammation. Chronic excitement soon produces a change in the arterial system, which is evidenced by the quick hard pulse, plenitude of the epigastrium, but irritability is not long confined to the stomach for we see the secretion of the liver & kidneys of the pancreas depraved, a convincing proof that the irritation has extended to the glan-
gery.



Diet and Exercise.

Believing this disease to consist in ~~an~~ weakness and irritation of the stomach, it should be our first object to lessen the weakness and allay the irritation, which is best done by a regular and prudent course of regimen.

The practice of over-loading and distending the stomach must be relinquished for a more rational course, which is abstemiousness to a considerable extent. There certainly can not be the least advantage in supplying the stomach with more food than it desires, for the residue can not nourish the system, but must remain, as an incumbrance to the stomach and to the whole of the alimentary canal. If it be not taken up in the form of nourishment, it undergoes all those chemical changes, which it would out of the stomach in any situation equally warm.



of course we have fermentation & putrefaction. Mr. Abernethy justly remarks, that nature seems to have formed animals to live and enjoy health upon a scanty and precarious supply of food. He says by adapting an abstemious diet, the appetite is created and the power of digestion increased, hence we should proportion the quantity of food to the strength of the stomach, the quantity to the feeling and at regular intervals of six or eight hours, three times a day.

A great abstemiousness seems to produce in digestion, it should be guarded against, for nature evidently designed a portion of food as the appropriate excitement which induces a healthy secretion of the gastric juice.

The Stomach retains & digests most easily solids of a certain density, but some kinds are digested more easily than others. It is difficult to make provision for all stomachs, we will



therefore have no regard to idiosyncrasy of constitution, but will speak of food which is found to agree with most stomachs.

In the first stage of indigestion animal diet agrees with most dyspeptics, but man rarely agrees with a weak stomach, hence the meat of young animals is not easily digested. To avoid recapitulation we will treat of diet in connection with the three meals which we think best to be taken in the day together with exercise.

We would naturally suppose a person would feel disposed to take breakfast on rising in the morning, which should be early but from the circumstance that the gastric juice is not secreted during sleep this is found not to be the case. From this circumstance we would be favourable to light exercise though avoiding fatigue, for an hour or two previous to this important meal.



If the air be pure and the weather good a walk or a short ride should be taken before breakfast. The meat should consist in much lean meat and stale bread or toast. Biscuits that should not be brown or rather embrowned as it is apt to sour and it is well ascertained by chemistry that charcoal is indigestible.

Bread made of the finest flour has a tendency to produce costiveness from the astringency of the starch, but this may be obviated by being made of the untroubled flour, commonly called white flour. The bran in this acts mechanically on the bowels, exciting them to immediate action.

Tea, coffee, and chocolate are to be abated but when used some particular circumstances are to be observed. The black is superior having less of the narcotic properties than the green. An infusion of coffee without milk is the best and only way it should be used.



Chocolate taken in the usual way is of-
fensive to the stomach, but agrees well when
prepared so as to divert it of its oily prop-
ties, for it is found that oil is fatal in no form,
agree with dyspepsia. & soft beaten eggs is
agreeable to most stomachs. L. Paris, recommends
the dyspeptic to breakfast on a lean piece of
mutton with barley water and stale bread.

The time for active exercise has now near-
ly arrived, after an interval of an hour or two the
patient should exercise freely until near
dinner, which should not be later than
one or three o'clock. The dinner should con-
sist of mutton or beef, either roasted or boiled.
Roast meat is more nutritive than boiled
but egg digestible. It is of the greatest im-
portance to have meats moderately done.
The different kinds of game may be used
by dyspeptics. The dark part of birds has been
found to be more digestible than the whole



which is apt to run into the acetous fermentation. Perhaps cucumbers and potatoes are the only vegetables which can be used with impunity. Condiments are generally injurious though the food should be well seasoned. The practice of finishing the meat with fatty and fatty can not be too much reprobated though there can be no objection to many fruits, particularly to apples, peaches, and pears, provided they are ripe.

What has been said of exercise between breakfast and dinner applies equally well to the interval between dinner and tea which should perhaps consist in walk and date breakfast if it be found to agree well with the dyspeptic.

If possible exercise should be taken so it respects supper at a late hour of the night there is a diversity of opinion. If exercise be not requisite during digestion, it is certainly unavailing by nature during digestion and sanguification hence sleep will be interrupted.



Therefore we would venture to give it as our opinion that sedatives are injurious, and should be abandoned.

Water, among natural beverages, can alone be said to be the generalist of dyspeptic cases, though when there is great debility and the person has been in the habit of taking stronger drinks it may be used very moderately. It is scarcely necessary to make a single remark respecting our loading the stomach with food as it is quite inadvisable to deserve comment.

Perhaps, a single extract from L^r Paris on the importance of some system and regularity in taking meals will suffice for this most important part of our treatment. I will wave all my objections to the quality and quantity of your food, if I were sure that such a sacrifice of dinner would ensure regularity in the periods of your meals.



Treatment,

This disease though originating from various and trifling causes, becoming, when too long neglected, very obstinate and unyielding. In our endeavours to effect a cure we should first try to remove the local and general causes.

The stomach being generally overloaded with crude and acidulous substances it is generally recommended to commence the medical treatment by an Emetic. Though we do not conceive this to be of much permanent advantage as it will add to the debility and irritation which now already exists, it should be our endeavours to prevent the repetition of an Emetic under such circumstances, and especially as we see it is often the cause of the disease. Ipecacuanha is the emetic usually recommended.

As costiveness is one of the most constant symptoms attendant on this disease, we must



next resort to cathartics, with which many, of the aromatics may be combined with advantage, but nothing can be more injurious, than harsh irritating cathartics, we are uniformly recommended to resort to the mildest aperients. Dr. Parr recommends that the excitement should be repeated till the regular action is induced, yet no single excitement, being such as may prove an irritant to the organ.

To overcome costiveness we should solicit a periodical discharge at certain hours, as we are animals of habit, this can not be an unnecessary advice to persons thus situated. Friction over the abdomen several times in the day, is resorted to with decided advantage in those cases of obstinate constipation. Senna, graduated in strength according to the particular condition of the bowels, in combination with some of the neutral salts is thought to be one of the mildest,



and best, cathartics, and when much irregularity and torpor exist, in the bowels a preparation of aloes is recommended, also under similar circumstances and where no fever exists Whit's Mustard seed is strenuously recommended. Dr. Parr says he has known it to ensure a regular alvine discharge in persons of costive habits, and has seen it correct that kind of diarrhoea which is very apt to accompany a diseased state of the mucous coat of the intestines.

Diarrhoea is very apt to attend inoculation from the irritation of acrid matter or impure feces, under such circumstances small doses of magnesia with a few drops, of laudanum in some mucilage will generally remove this state of the bowels.

Perhaps the most popular purgative is the Rheum Palmatum, though this is objected to on the grounds of its leaving, after its operation, an astringent effect but ^{this} objection



can not be a valid one, as it is easily de-
 viated by soap or magnesia. The laxative
 preferred by Professor Chapman is a equal
 quantity of the Lard Sulphureus and Calcein
 Magnesia: the last medicine is particularly re-
 commended for correcting the flatulency and
 acidity of the stomach, an ounce a day,
 says Dr. Good, has made many a perfect cure.
 But almost any of the Alkalies or Earths are
 beneficial; the Chalk Lulup is an excellent
 remedy in correcting this disagreeable eructation.
 And when the patient complains of a costi-
 surface and weakness, the carbonate of Am-
 monia is the best Alkali which can be
 given, for it neutralizes a portion of the
 acid matter which exists in a gaseous form
 and is well calculated to relieve the weakness
 and debility of the stomach. The popular
 domestic remedy which is recommended very
 highly by Dr. Physick has effected some cures.



This is best prepared by mixing one quart of hickory ashes and a spoonful of sour with boiling water and after standing and decanted two or three glass full may be given in an half hour after each meal. My former preceptor Dr Schull Mettane is in the habit of prescribing the grape vine ashes and thinks they possess some virtue over any other kind.

The excretions are not always of an acid character, but are of a putrid nature giving to the breath the odour of Carburetted Hydrogen. Then the acids are to be gently used, and on some accounts the vegetable acids are preferred. The acidulated fruits are thought to be of service. The gastric juice of animals is used, though it is useful more as a gentle aperient, than as possessing any peculiar power over the secretions. Charcoal is known to be a powerful corrector of putrid substances, hence it has been used, in sensible doses, repeated several times a day,



and though it may possess no specific influence on the secretions, yet it is a gentle & mild aperient.

The propriety of exhibiting bitters, and stimulents in dyspepsia is somewhat doubtful & it would seem from the pathology it is not at all proper to exhibit stimulents in any form, yet they are recommended by very high authority. We would think an indiscriminate use of them must be very injurious, but when properly administered they must be of decided advantage. When there is an evident loss of tone in the stomach without any appearance of inflammation, their place can not be very well supplied by other medicines.

Two of the most prominent symptoms we have to combat are a deficient action & a relaxed state of the fibers, the first is recommended to be met by stimulents but to which we do not willingly subscribe since



it appears to us that in the same proportion that the action is increased by stimulants in the very same proportion is the debility and relaxation of the fibers increased.

Astringents act by contracting the length of the fibers and hence they acquire strength by condensation, and we ~~can~~ hardly conceive of an increase of contractile power without an increase of tone, which is what we want and what is recommended to be obtained by stimulants, and it is reasonable to suppose that bitters and astringents do excite the sensorial fluid and increase its secretion. They have also another happy effect that of correcting the tendency to fermentation. These three medicines may be combined, producing in this way much more service than when either is given alone. Myrrh which possesses these properties, is given in this stage of the disease, in dose of ʒi or ʒiiss , with good effect.



This medicine appears to possess some peculiar properties in chronic inflammation it is prescribed with very decided advantage in old indolent ulcers which possess just such inflammation as exist in the stomach.

In making a selection from the single bitters we need not be particular as they all possess nearly the same qualities. The Quassia in 'juicy infusion' is frequently recommended, also Columbo which possessing a delightful aroma is entirely well suited to dyspeptic cases.

The Anabasis habitus is one of our best bitters which can be given in the condition of its bawdy, and stomach. A cold infusion is the best form in which it can be given care is to be taken not to dissipate the aroma on which its pleasantness consists, this has the property of a bitter and warming, without stimulating.



The Humulus Lupulus given in powder or infusion is well thought of in dyspepsia also the garden Ratana root. Serenoa Bark to have been enumerated among the tonics and indeed a host of others which would be out of place to mention, in an essay of the nature of the present.

The mineral tonics are on some accounts to be preferred to the vegetable and the various iron preparations of iron are justly, preferable. The Carbonate Ferri in ten grain doses is on some accounts the best. Dr. Chapman recommends the Chalybeate Water, impured, according to the formula in his dispensatory. The Chalybeate waters are to be preferred to any other preparation of iron. The Mineral acids are also recommended but where much acidity exists in the stomach they are not to be used with the same advantage as the mineral salts. Sulphuric & Muratic are most used.
 Dr. Ross 3j ss. Arch. aurant. Rad. gent. aa 3j ss.
 In Luitan 16j. Expose to heat three days repeatedly shaking.



Consistent with dyspepsia & cardialgia which require some peculiar treatment, this is occasioned by an acid in the stomach which is sometimes relieved by an emetic, but this can not be repeated often enough to relieve this form of the disease. The H. Kulew, particularly in the form of Riverius draught, are good. The opiate of Byssmouth in 1/4 grain doses is represented as having some peculiar efficacy in cardialgia.

What has been said respecting the treatment of dyspepsia applying almost exclusively to the first stage of the disease. We will now proceed with the second stage or where the pulse has become hard and tense and the epigastrium tender. A febrile state now evidently exists, calling for measures very different from those last enumerated. It is hardly ever necessary to resort to general bleeding, but when the strength is not exhausted and the pulse is hard and corded it may be resorted to with advantage.



Topical bleeding either by cups or leeching is of decided utility; leeching is to be preferred, many others plan of depleting Blisters after leeching are resorted to and a resolution of them often becomes necessary. Purgatives are to be much more freely used in this than in the former stage the bowels are to be kept in a more soluble state, from two to three evacuations a day will be necessary, but it would be better to keep them so by dieting, than by medicine. meaty must be discontinued and vegetables must supply their place. The bowels are not only more torpid under the use of animal food, but cathartics act with greater difficulty, and it is just the reverse with vegetables. But it may not be always prudent to keep the patient on so low a course of diet, hence the inflammation must be subdued by other means. The Nitrate of Potash, in a little gum or mucilage appears to answer this purpose.



rose better than any thing else, when the inflammation continues. To remove the emetic, opium may be used on the breast, for establishing a permanent drain.

Treatment of Duodenal Indigestion.

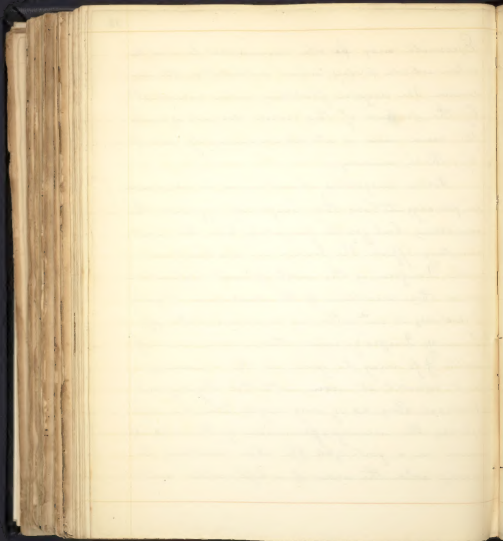
When indigestion of the stomach has existed for any considerable time we can not suppose the duodenum well, without being diseased, nor can we imagine the fluids of the stomach to be in a solid state and the duodenum, receiving these clots and half-elaborated chyme, remain long unimpaired.

When the duodenum is full and puffy, having the appearance of being distended, either by the fluids or food the cure is best commenced by an emetic. Thus produced by its nauseating tendency a secretion in the surface by which mucus, together with its emetic property the matter is more easily reabsorbed into the stomach and thus eliminated.



Enemata may be also administered to clear the colon which presses, when distended, on the duodenum. The irregular fluttering pulse occasioned by the pressure of this second stomach against the vena cava is almost immediately relieved by these means.

Active purgatives should never be administered, for says Dr. Parry they uniformly aggravate the symptoms, but gentle purgatives have the most salutary effect. The Senna in combination with Quassia is the most approved preparation under this condition of the duodenum. Dr. Galt prescribes it in the following manner. Take of Senna ʒij. Quassia ʒj. infuse them in a pint of water, ʒss may be given in the morning and repeated at noon; with Pil. Hydrag. and Extract. Aloe ʒa ʒij every night. This he says relieves the uneasiness of the duodenum in a fortnight. The skin sometimes becomes cold, the urine of a light colour and



every appearance of debility and weakness during this condition of things the Spiritus Ammonia Aromaticus should be added to the bitter infusion. But there is a very different condition of the system from the last, the pulse is hard and tense, the urine high coloured, the skin hot and indeed every appearance of a febrile paroxysm; under such a situation in the place of the senna may be substituted some of the neutral salts, and the Sulphate of Potash has the character of being almost a specific in this particular circumstance of the duodenum. When there is much heat in the region of the stomach and duodenum, the saline draught, in a state of effervescence may be administered with good effects.

Joel W. Dupuy
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 Virginia.

